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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,039	11/21/2003	Marc A. Kaplan	YOR919992024US2	3159
23405	7590	06/16/2005	EXAMINER	
HESLIN ROTHENBERG FARLEY & MESITI PC 5 COLUMBIA CIRCLE ALBANY, NY 12203			PRIETO, BEATRIZ	
			ART UNIT	PAPER NUMBER
			2142	

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/719,039

Applicant(s)

KAPLAN ET AL.

Examiner

Prieto Beatriz

Art Unit

2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-23, 30-34 and 45-49 is/are allowed.
- 6) ☒ Claim(s) 1-14, 24-29 and 35-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
*Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).*  
*Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).*
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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***DETAILED ACTION***

1. This communication is in response to Amendment filed 021/17/05, claims 1, 8, 24, 27, 35, 39, 42 have been amended, claim 1-49 have been examined and remain pending.
2. Claims 15-23, 30-34 and 45-49 are allowable.

***Claim Rejection***

3. Quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action may be found in previous office action.
4. Claims 1-14, 24-29 and 35-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Krishna (US 5,412,804).

Regarding claim 1, Krishna teaches a method including performing operations on data “message streams” in a “message” data processing system (col 1/lines 15-19 and col 5/lines 10-13), where the operations are performed arranged in a particular order (col 2/lines 9-29), including a sequence of operations between nodes (e.g. Fig. 9) in the data processing system (col 6/lines 30-38, 52-54), further including converting the first operation sequence having a operation (called “select”) followed by a second operation (called “select”), into an equivalent operation sequence comprising a single operation (called “select”) (col 14/lines 32-58), and wherein said selection operation comprises determining whether input data satisfies one criteria (e.g. a predicate) (col 12/lines 24-29, col 9/lines 31-51).

Regarding claim 2, the first operation sequence further comprises a first function (called “transform operation”) (col 1/lines 53-56 and col 12/lines 16-18), followed by a second transform operation (col 18/lines 16-21) and wherein the second equivalent operation sequence comprises a single transform operation (col 14/lines 32-58).

Regarding claim 3, formulating alternative order of execution, i.e. "reorganizing" message processing operations in a message processing system comprising using the arranging method of claim 1 (col 4/lines 4-65 and 2/lines 36-51).

Regarding claim 4, wherein said reorganizing is facilitated by an automated processing system (col 4/lines 57-65).

Regarding claim 5, a method for arranging an information flow graph descriptive of message processing operations for a method processing system, comprising using the arranging method of claim 1 on said information flow query graph (col 6/lines 19-38, 52-54).

Regarding claim 6, wherein said method for arranging the information flow graph is performed on an automated processing system and wherein the information flow graph comprises "information", i.e. instructions or a program tangibly stored on media in said automated processing system (col 4/lines 57-65).

Regarding claim 7, reducing a number of calculations required to determine the second equivalent operation sequence by storing results of any common sub expressions thereof and using said stored instead of recalculating the common sub expressions (col 2/lines 36-45).

Regarding claim 8, including limitation discussed on claim 1, and further a first operation sequence having a first multiple predicates including transform operations, i.e. a transform operation followed by a second transform operation (col 18/lines 15-21), the method comprising: converting the first operation sequence into a second equivalent operation sequence comprising a single transform operation (col 14/lines 32-58), wherein said transform operation comprises transforming according to a "mathematical" formula (col 17/lines 54-col 18/line 1).

Regarding claim 9, this claim is substantially the same as claim 1, same rationale of rejection is applicable.

Regarding claims 10-14, these claims are substantially the same as claims 3-7, respectively, same rationale of rejection is applicable.

Regarding claims 24-26, these claims correspond to the system claims comprising the means associated to method claims 1-2 and 7, discussed above, same rationale of rejection is applicable.

Regarding claims 27-29, these claims correspond to the system claims comprising the means associated to method claims 8-9 and 14, discussed above, same rationale of rejection is applicable.

Regarding claim 35, comprises limitation substantially the same a claim 1, same rationale of rejection is applied thereon; further comprising a first sequence having a aggregated operation followed by a select operation (col 2/lines 19-45), converting the first operation sequence into a second equivalent operation comprising a select operation followed by a transform operation (col 14/lines 32-58).

Regarding claims 36-37, joining multiple select predicated into an equivalent select operation and joining multiple aggregated function into an equivalent aggregated function (col 17/lines 25-40, col 18/lines 15-26).

Regarding claim 38, this claim correspond to the article of manufacture comprising a computer readable usable medium having computer readable program code means embodied therein for performing the method claim 7, discussed above, same rationale of rejection is applicable.

Regarding claims 39-41, these claims correspond to the article of manufacture comprising a computer readable usable medium having computer readable program code means embodied therein for performing the method claims 1-2 and 7, discussed above, same rationale of rejection is applicable.

Regarding claims 42-44, correspond to the article of manufacture comprising a computer readable usable medium having computer readable program code means embodied therein for performing the claims 35-38, discussed above, same rationale of rejection is applicable.

### *Response to Arguments*

5. Regarding claims 1-14, 24-29 and 35-44 rejected under 102 being anticipated by Krishna, it is argued (p. 14-16 of remarks) that Krishna is improperly applied as non-analogous art.

In response to the above-mentioned argument, it is respectfully noted that:

(i) the anticipatory prior art is nonanalogous art from the invention or is not recognized as solving the problem solved by the claimed invention, are not germane to a rejection under section 102. "Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting *In re Self*, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). See also *State Contracting & Eng'g Corp. v. Condotta America, Inc.*, 346 F.3d 1057, 1068, 68 USPQ2d 1481, 1488 (Fed. Cir. 2003) (The question of whether a reference is analogous art is not relevant to whether that reference anticipates. A reference may be directed to an entirely different problem than the one addressed by the inventor, or may be from an entirely different field of endeavor than that of the claimed invention, yet the reference is still anticipatory if it explicitly or inherently discloses every limitation recited in the claims) (see MPEP 2131.05).

(ii) Instant invention is directed to the optimization of database information access, e.g. the claimed "SELECT" operation, is an information space (data) retrieval expression of SQL syntax, including a Boolean valued function including attribute names and constant (see specification page 6, lines 23-28 and page 11, lines 15-22). The Krishna reference is in instant application's field of endeavor.

6. Regarding claims 1-14, 24-29 and 35-44 rejected under 102 being anticipated by Krishna, it is argued (p. 16 of remarks) that Krishna does not teach claims as amended. Specifically, Krishna fails to teach where the select operation comprises determining whether input data satisfies a criteria.

In response the above-mentioned argument, applicant's interpretation of the prior art has been considered. However, Krishna teaches: the data manipulation language for a relational database management system typically specifies operations upon one or more relations to create a new relation. *A "restriction" operation forms a subset of the rows in a table by applying a condition or "predicate" to the values in each row* (col 1/lines 35-39). The query language for a relational database system typically defines syntax for specifying a "query block", including a list of relations to be accessed, *a predicate to govern a restriction or join operations* and a list or aggregated functions (col 1/lines 61-67). The operations to perform upon the data, where the query is in the form of a query block (col 6/lines 19-25). Example 2 contains a *select statement, which contains a predicate that is evaluated, e.g. DEPT.pcs will have a value >0 and COUNT (\*) will have a value of 0* (col 12/lines 24-29). Fig. 7 shows a flowchart of a procedure for executing a query block comprising a *SQL query block having a "SELECT", "FROM", "WHERE" and possibly a "GROUP BY" statement* (col 9/lines 31-38). The steps include *testing the predicated for each row of the new relation, and data or tuple "rows" are discarded for which the predicate is false*. In other words, step 132 *performs a restriction operation upon the new relation formed in step 131* (col 9/lines 39-51). The SELECT operation, as broadly interpreted from invention's disclosure on page 11, paragraph [0046] is not distinguishable from the SELECT operation in Krishna.

Arguments that no determination is made as to whether “input” data satisfies a criteria is not persuasive.

7 Regarding claims 8, 27 and 42 rejected under 102 being anticipated by Krishna, it is argued (p. 16 of remarks) that Krishna does not teach claims as amended. Specifically, Krishna does not teach transforming according to a mathematical formula.

In response to the above-mentioned arguments, applicant’s interpretation is noted. However, according to the invention’s disclosure a transformation operation is exemplified on page 11 [transform: (AVG TEMP C: = (((LO TEMP\_ F + HI\_TEMP F)/2-32)\*(5/9))]. Krishna teaches where an equivalent method would be to use symbolic execution upon *algebraic expressions* representing the *relational operations of the nested queries*. Nesting is symbolically represented in such *algebraic expressions as a function* that appears in an outer nested query and has an argument including the relational operations of an inner nested block. The method for *evaluating the function for the pair of outer and inner nested blocks defines a rule or pattern which is applied or matched to the algebraic expression*, and when a match is found, the substitution or change to the expression that should be performed to remove the function (col 17/lines 54-col 18/line 1), the expression may include joining algebraic expression comprising (AVG, MAX, MIN, SUM) function where only a single join is required. (col 18/lines 16-21). Example of a transformation expression:

```
SELECT R.a
FROM R
WHERE R.b OP1
      (SELECT COUNT (S.*)
FROM S
WHERE R.c = S.c
AND S.d OP2
      (SELECT AVG (T.d)
FROM T
WHERE S.e = T.e
AND T.g OP3
      (SELECT SUM(U.g)
FROM U
WHERE S.h = U.h
AND T.i = U.i))) (col 22/lines 48-60)
```

Thereby the “mathematical formula” exemplified by applicant’s invention is not distinguishable for Krishna’s transformation expression.

8. Applicant’s arguments filed 02/17/05 have been fully considered but not rendered persuasive.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (571) 272-3902. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Rupal Dharia can be reached on (571) 272-3880. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system, status information for published application may be obtained from either Private or Public PAIR, for unpublished application Private PAIR only (see <http://pair-direct.uspto.gov> or the Electronic Business Center at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

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P.O. Box 1450  
Alexandria, VA 22313-1450

or faxed to Central Fax Office: (703) 872-9306, for Official communications/entry;

or telephone: (703) 306-5631 for TC 2100 Customer Service Office.

B. Prieto  
TC 2100  
Primary Examiner

  
**BEATRIZ PRIETO**  
**PRIMARY EXAMINER**